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Paractenomorpha baehri, gen. nov., spec. nov., a new Phasmid from South Australia

(Insecta, Phasmatodea, Phasmatinae, Phasmatini)

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An interesting new species of Phasmatodea from Gawler Ranges, South Australia is described and illustrated from the female sex. The new genus *Paractenomorpha*, gen. nov. is established for *P. baehri*, spec. nov., which is designated as the type species. One additional species, *P. macrotegmus* (Tepper, 1887) is included in the new genus *Paracentenomorpha*, gen. nov. which is closely related to *Ctenomorpha* Gray, 1833. The holotype of *Paractenomorpha baehri*, spec. nov. is preserved in the collection of the Zoologische Staatssammlung Munich, Germany (ZSMC).

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Introduction

Although several of the world's largest and most spectacular insects belong to the order *Phasmatodea*, even tribes such as the Autralasian *Phasmatini* which contain some of the largest and most impressive known insects, have so far remained quite poorly studied. The *Phasmatini* Bradley & Galil, 1977 are represented in Australia with numerous, often impressingly large and mostly alate taxa, but as the Australian fauna is clearly understudied, still new species and even genera of these striking insects are discovered. Vickery (1983) listed only 98 Australian species and Balderson, Rentz & Roach (1998) listed additional six species but the estimated number of existing species is much higher. The most recent descriptions were that of *Cigarrophasma tesselata* a new genus and species by Brock & Hasenpusch (2000) and *Parapodacanthus hasenpuschorum* by Brock (Zompro & Brock, 2003) both from Queensland.

During investigation of the unidentified material in the Phasmatodea-collection of the Zoologische Staatssammlung Munich (ZSMC) an interesting, and strikingly small, so far undescribed species of *Phasmatini* Bradley & Galil was discovered. The single specimen traced was collected by Dr. Martin Baehr (ZSMC) in the Gawler Ranges, South Australia. Further examination and comparison with other material proved that it could not be affiliated to any of the existing genera.

Paractenomorpha, gen. nov.

Type-species: *Paractenomorpha baehri*, spec. nov., by present designation.

Lopaphus, Tepper, 1887: 112, pl. 6.
Ctenomorpha, Vickery: 1983: 5 (not Gray, 1833) (in part)

Diagnosis

♀♀. Small to medium-sized (body length 102.0-139.7 mm), very slender *Phasmatini* with strongly reduced alae. Head elongate, at least 2× longer than wide, almost parallel-sided, vertex flat. No ocelli. Antennae short, indistinctly longer than head, segments very stout and transverse (apical segments

Fig. 1. *Paractenomorpha baehri*, gen. nov. & spec. nov. Holotype (♀).

slightly longer than wide). Pro- and mesothorax minutely but densely granulose. Granules of mesonotum partly enlarged and forming minute spines. Mesothorax at least 2.5× longer than head and pronotum combined. Tegmina slender, oval, slightly projecting over posterior margin of metanotum. Alae strongly reduced, ± equal in length to tegmina, at best reaching half way along tergite II. Anal region greyish black with irregular transparent markings towards base. Median segment slightly longer than metanotum. Abdominal segments II-VII at least 2× longer than wide, parallel-sided. Sternite VI with a pair of rounded, leaf-like lobes at posterior margin. Anal segment with a median carina and small triangular medial incision at posterior margin. Operculum short, not reaching posterior margin of anal segment. Cerci very elongate, at least as long as tergites VIII-X combined, laterally compressed and irregularly leaf-like. All carinae of the legs more or less prominently serrate and dentate, except the dorsal carinae of meso-, metafemora and tibiae. Posterodorsal carina of meso-, metafemora and tibiae with a more or less prominent lobe in basal half and slightly rounded apically. Probasitarsus as long as remaining segments combined. Meso- and metabasitarsus as long as combined length of remaining segments except claw.

Eggs. Medium-sized, ovoid. Capsule oval or cylindrical in cross-section and distincly longer than wide. Capsule surface slightly wrinkled. Operculum flat, almost circular. Capitulum knob-like and on a short stalk.

Differentiation. The new genus is only known from the ♀♀ and eggs. It is most closely related to *Ctenomorpha* Gray, 1833, but differs by: lack of ocelli, distinctly shorter, transverse antennal segments, minutely but densely granulose thorax, foliaceous lobes at the posterior margin of sternite VI and short operculum which does not extend to or over the posterior margin of the anal segment. The egg capsule is less strongly sculptured than in *Ctenomorpha* Gray, cylindrical in cross-section and lacks any longitudinal ridges or carinae.

Distribution. South Australia: Gawler Ranges & Mount Lofty Ranges.

Etymology. The name mirrors the close relationship and general similarity to *Ctenomorpha* Gray, 1833.

Species included

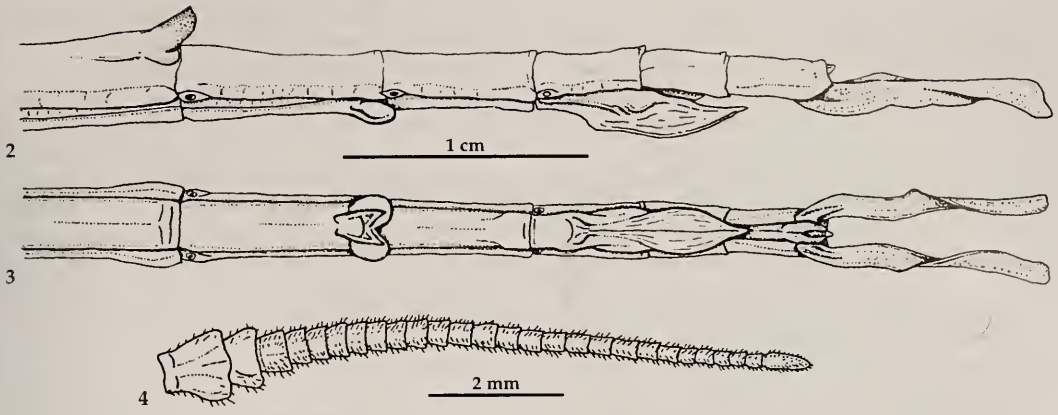
Paractenomorpha baehri, spec. nov. (Gawler Ranges: Iron Knob)

Lopaphus macrotegmus Tepper, 1887: 112, pl. 6 (♀). (Mount Lofty Ranges: Norton's Summit)

Comments

Althought the type specimens, according to Vickery (1983: 5) a ♂ and a ♀ syntype in the South Australian Museum, Adelaide (SAMA) have not been examined, there can be no doubt in *Lopaphus macrotegmus* Tepper, 1887 being a member of this new genus. The description of the ♀ and egg as well as illustration of the ♀ show all the typical features of *Paractenomorpha*, gen. nov. When Tepper (1887) originally described his new species, he was unsure of the generic placement and provisorically included it in *Lopaphus* Westwood, 1859, a member of the subfamily Necrosciinae. He did not describe the ♂♂ but stated them to be slightly smaller than ♀♀ (body lengths of ♀ after Tepper: about 5½ inch, 139.7 mm) and provided the following characterization of the eggs (1887: 113): "The eggs are elliptic, cylindrical, about one-eighth inch long and half as thick, wrinkled, greyish black when mature, and open with a lid at one end, which bears a conspicuous round knob." Furthermore the author reported this species to live and feed on stringybark shrubs in the Mount Lofty Ranges.

Vickery (1983: 5) erroneously listed *Lopaphus macrotegmus* Tepper, 1887 as a synonym of *Ctenomorpha chronus* Gray, 1833.



Figs. 2-4. *Paractenomorpha baehri*, gen. nov. & spec. nov. (♀). 2. Abdomen, lateral view. 3. Abdomen, ventral view (Scales: 1 cm). 4. Right antenna (Scale = 2 mm).

Paractenomorpha baehri, spec. nov.

Figs 1-4

Types. Holotype: ♀, Australien 75, Gawler Range, 60 km w. Iron Knob, SA, 20.12.1972, leg. M. Baehr, Zoologische Staatssammlung München (ZSMC). – Paratypes: 4 eggs, extracted from abdomen of holotype, same data (ZSMC).

Differentiation. Easily distinguished from *P. macrotegmus* (Tepper, 1887) from the Mount Lofty Ranges by: distinctly smaller size, more elongate body, granulose instead of spinose mesonotum, distinctly longer anal segment, the large scale-like lobe at the posterior margin of tergite V and more prominent dorsal lobe of the meso-, metafemora and tibiae.

Description of ♀

The following description is based on the unique holotype in ZSMC. The perfect and complete specimen has originally been preserved in spirits.

Medium sized (body length excluding cerci 102.0 mm) and slender (average body width 2.9 mm) species, with short antennae (7.1 mm), long foliaceous cerci (9.4 mm) and strongly reduced alae (8.9 mm) which are only indistinctly longer than the tegmina (8.3 mm). General colouring of body, legs, tegmina and costal region of the alae creamish mid brown. Abdomen and femora with a few indistinct greyish markings. Antennae pale greyish brown. Anal region of alae dark greyish brown with a number of indistinct transparent markings towards base.

Head. Elongate, almost 2.5× longer than wide and parallel-sided, broadest at eyes. Vertex flat and smooth. Between the eyes with a distinct, curved transverse impression, which surrounds a rounded raised area. Anteriorly between the bases of the antennae with two deep, triangular, impressions. Eyes greyish brown, prominent and convex. Antennae slightly longer than head, with 28 segments. Last antennomere distinctly longer than previous. Scapus dorsoventrally flattened, trapezoidal, distal margin broader than basal margin and indistinctly longer than wide. Pedicellus cylindrical, ⅓ the length of scapus, broader than long. Remaining antennomeres very short, transverse or at best as long as broad (towards apex) and densely setose.

Thorax. Pronotum minutely granulose, about ⅔ the length of head, almost 2× longer than wide, slightly constricted medially. Median line and median transverse depression very indistinct. Mesothorax elongate, more than 2× longer than head and pronotum combined, cylindrical and slightly constricted at anterior margin. Mesothorax, metathorax and pleurae all scabrous and densely granulated. Mesonotum with a faint median line and a pair of slightly enlarged, blunt tubercles in anterior half. Mesosternum with two longitudinal rows of rounded tubercles. Metanotum 2× longer than wide, cylindrical. Tegmina elongate, oval, narrowed towards base, rounded at apice and slightly projecting over posterior margin of metanotum. Central hump indistinct and placed about ⅔ the way along the radius. Alae slightly longer than tegmina, not reaching posterior margin of median segment.

Abdomen. Median segment slightly longer than metanotum, almost 2.5× longer than wide, rectangular. Segments II-VI increasing in length, II 2x, V 3× longer than wide. VII slightly shorter but narrower than VI-V. Tergite V with a prominent, transverse and scale-like lobe at posterior margin. Sternites very minutely granulose, VI with two rounded, foliaceous lobes at posterior margin. Each of these lobes with a distinct longitudinal carina which

divides apically. Tergite VIII ⅔ the length of VII, parallel-sided. IX half the length of VIII and with a fine median carina. Anal segment slightly longer than IX, widening posteriorly and with a minute, triangular incision at posterior margin; angles rounded. Supraanal plate very small, triangular. Cerci almost as long as last three tergites combined, laterally compressed, strongly foliaceous and C-shaped in cross-section. Operculum keeled, convex, pointed towards apice and reaching half way along tergite IX.

Legs. Long and slender. Anterodorsal carina of profemora prominently raised and sparingly dentate, posteroventral carina densely serrate. Anterodorsal carina strongly reduced, smooth. Protibiae with posterodorsal carina slightly raised and all carinae smooth. Probasitarsus as long as remaining segments combined. All three ventral ventral carinae of meso- and metafemora dentate, apical tooth of antero- and posteroventral carinae slightly enlarged and triangular. Dorsal carinae smooth except for a single, rounded lobe in basal half of the posterodorsal carina. Ventral carinae of mesotibiae with 7-8, of metatibiae with 11-12 serrations. Dorsal carinae smooth, but posterodorsal carina raised and rounded at apice and with a prominent, rounded lobe in basal quarter of tibia. Meso- and metabasitarsus as long as combined length of remaining segments except claw.

Eggs. Four eggs (paratypes) could be extracted from the holotype's abdomen. These are however not fully developed, why care should be taken with the following characterization.

Capsule oval, slightly laterally compressed, oval in cross-section and almost 2× longer than wide. General colouring of capsule pale brown (presumably darker when fully developed). Capsule surface not showing any hints of longitudinal ridges or carinae. Operculum flat, oval and with a short stalk in its centre. All examined specimens lack a capitulum and non allows to see the exact outer margin of the micropylar plate.

Measurements (in mm). Capsule length 3.55, width 2.64, height 2.00.

♂. Unknown.

Tab. 1. Lengths of *Paractenomorpha baehri*, spec. nov. (in mm).

	HT, ♀
Body (excluding cerci)	102.0
Head	6.3
Pronotum	4.0
Mesonotum	20.1
Metanotum	6.0
Median segment	7.8
Tegmina	8.3
Alae	8.9
Cerci	9.4
Operculum	8.4
Profemora	22.0
Mesofemora	18.9
Metafemora	22.4
Protibiae	23.0
Mesotibiae	17.9
Metatibiae	24.6
Antennae	7.1

Etymology. The new species is named in honour of its collecteor Dr. Martin Baehr (ZSMC, Munich).

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